REMARKS

Applicant has amended the claims to better point out the invention and in accordance with Examiner's remarks. Claims 7, 8, and 20 have been rewritten in independent form to include all limitations of the base claim and intervening claims. The new independent claims are presented as claims 35, 36, and 37 respectively.

Claim 1 has been amended to better point out the invention by adding the limitation of mechanical coupling and including the link of claim 2. Claim 2 is thus canceled. Claim 4 has also been canceled.

Claim 5 is amended to include claim 6.

Claim 6 has been canceled.

Claims 33 and 34 have been canceled.

The remaining claims are substantially as previously presented except for some reference changes as a result of including claim 2 into claim 1.

Errors in Figures 10 and 11 were discovered and replacement drawings are presented to bring the drawings into agreement with the text.

Summary of Previous Actions

Telephone Interview

Date April 18, 2005

Participants:

Examiner: Timothy D. Collins

Applicant represented by James Richards

Claims Discussed: Claims 1-34

Results: Agreement was reached that electromechanical is generic to optical and switch. Agreement was reached on the method of applying species criteria to the claims.

Election of Species

Accordingly Applicant elects the species as follows:

a. Species A: sensor is an optical sensor;

I. Subspecies 1: trim signal includes a response portion that is proportional to the force measured;

(2) Sub-subspecies b: trim sensor included in said control servo;

(a) Second sub subspecies I: the first trim controller is responsive onto the polarity of the first trim signal.

Amendments to the Claims

The claims have been amended to include status indication and to better point out the invention.

Claims 1, 2, 4-8, 12, 15-18, 20, 22, 25-27, 30, 31, 33, and 34 are elected as readable on this species.

Claims 9 -11, 13, 14, 19, 21, 23, 24, 28, 29, and 32 are withdrawn.

Claim 3 has been canceled.

Summary of the First Office Action July 12, 2005

Claims 1,2,4-6,12,15,16,25-27 were rejected under 102(b) as being anticipated by USPN 3598999 to Hofmeister. Claim 31 was rejected under 103. Claims 17, 18, 22, 23, and 34 were rejected under 103 as unpatentable over Hofmeister in view of USPN 5686907 by Bedell et al.

Summary of Examiner Interview

Date August 22, 2005

Participants:

Examiner: Timothy D. Collins

Applicant represented by James Richards

Claims Discussed: Claims 1, 33, 34

Results: Agreement was reached that claim 1 amended to require that the link is operatively coupled between the servo and the primary control does not appear to read on the prior art of record.

Claims 33 and 34 appear to require further restriction.

First Office Action Response

Remarks Concerning the Patentability of Claims 1-32

Claim 1 has been amended to better point out the invention by adding the limitation that the control servo is mechanically coupled to the primary control system through a coupling link and that the coupling link includes a push pull rod through which the servo is operatively coupled to the primary control.

As amended, the prior art of record does not show: "a control servo mechanically coupled to said primary control system through a coupling link; said coupling link comprising a push pull rod disposed between said control servo and said primary control, through said push pull rod said control servo is operatively coupled to said primary control system," and said link including a trim sensor.

Reference 999 shows a trim sensor in the primary control cables of an aircraft. Reference 999 does not teach placing the trim sensor between the servo and the primary control and does not teach placing the trim sensor in a link that couples the servo to the primary controls, as claim 1 now requires. Further, the link of reference 999, Fig. 4, 44 does not operatively couple the servo to the primary control system as is now required in amended claim 1.

The limitations of claims 2 and 4 are included in claim 1, thus claims 2 and 4 are canceled.

Claim 5 has been amended to more particularly point out the invention by adding the limitation of a rotating element connected to the flexing element and coupled to the flexing sensor.

Claim 6 has been canceled.

Claim 26 has been amended to include details of how the pulsing is performed.

Claim 27 has been amended to limit the response to polarity only.

Patentability issues in the remaining claims dependent on claim 1 have been rendered moot as a result of the amendment of claim 1.

Remarks concerning the patentability of Claim 31.

In the arguments concerning the rejection of claim 31, Examiner discusses a digital system generally, but fails to specifically address the variable duty cycle pulsed output. A digital system may have a non-pulsed proportional output by using a D/A converter and a linear amplifier, which is well known in the art. The use of a digital system does not dictate or suggest any particular form of output drive. The prior art of record does not utilize a variable duty cycle pulsed output proportional to a sensor. It is a feature of the invention that the output is pulsed, allowing the motor to integrate the effect of multiple pulses. "Pulse lengths from 50ms to 1 second have been successfully tested" (page 16, lines 29-31) i.e., the pulsing of the output caused no unacceptable effects on flight performance. Thus, the inventor has discovered that it is possible to pulse the motor driving a trim system in this manner without adverse effects.

Remarks Concerning the Drawing Corrections.

Replacement sheets have been provided for Figs 10 and 11. In figs 10 and 11, transistor 1016 was incorrectly drawn with the source connected to the output 506 and the drain connected to V+ 302. In the replacement sheets, the source is connected to V+ and the drain is connected to the output 506.

The change represents no new matter since one of ordinary skill in the art would conclude that there was a drawing error and would make the correct correction. There are at least three indications that the drawings are in error and how to correct the drawings. The first indication would be that transistor 1016 is reverse biased and would not work as shown. Reversing the drain and source connections would correct the bias and the circuit would work. The second indication is that complementary transistors as shown are typically used in a complementary drive configuration. Such configuration would reverse the drain and source connections and solve the reverse bias issue. The third and conclusive indication is found in the text describing the operation of the circuit. Two paragraphs from the description of Figure 10 from page 18 of the specification:

Assuming initially that transistor 1004 is off, thus the drain of transistor 1004 would be high or 12v and transistor 1016 would be off, transistor 1024, on. When transistor 1004 is switched on, transistor 1024 gate capacitance charge is immediately discharged through diode2 1012, turning off transistor 1024 rapidly. However, Diode1 1010 is reverse biased requiring the gate capacitance of transistor 1016 to drain through resistor 1014. Thus transistor 1016 is delayed in turning on.

Similarly, when transistor 1004 turns off, transistor 1016 gate capacitance charging time is limited only by resistor 1008; whereas transistor 1024 gate capacitance must charge through both resistor 1008 and resistor 1026. Transistor 1016 turns off rapidly; whereas transistor 1024 is delayed turning on. Thus, for logic transitions in either direction, both transistors, transistor 1016 and transistor 1024, are turned off before either one is turned on.

On the description of Figure 11 from page 19:

The positive drive signal 812 is first fed to transistor 1004 which level shifts the signal to the gate of transistor 1016. A high signal on the gate of transistor 1004 drives the gate of transistor 1016 to the V- rail and turns on transistor 1016, connecting the positive supply 302 to the A output 506. Resistor 1006 is provided to insure that transistor 1004 and transistor 1016 are in an off state if the driver for signal 810 is in a high impedance state. Because the two inputs 812 and 810 are independent, the driving device and in particular, the software routine in the microcontroller 902 must insure that both inputs 810 and 812 are not turned on simultaneously.

The description of the operation of transistor 1016 being turned on by a drop in the gate voltage below the V+ rail 302 and being turned off by a rise of gate voltage to the V+ rail 302 conclusively indicates that the source is connected to the V+ rail 302 and drain connected to the output 506 rather than the opposite. Thus, one of ordinary skill in

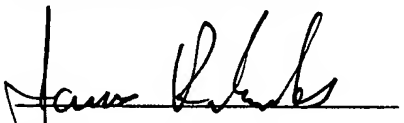
the art would conclude that the correct schematic is as shown in the replacement sheets provided, which show the source of transistor 1016 connected to the V+ rail 302.

Conclusion

Applicant submits that all of the stated grounds of objection have been accommodated or rendered moot. Applicant believes the claims are now in condition for allowance and respectfully requests such action.

If the Examiner believes, for any reasons, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,



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In The Drawings

Replacement sheets have been provided for Figures 10 and 11.

Attachments: Replacement Sheets for Figures 10 and 11.